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This report describes: a conceptual framework for viewing the stages of development of race relations and equal opportunity ("human relations") education and training programs; a model of the process wherein the personnel decisions made by individual supervisors and managers become reflected in the organization's EEO statistics; and an overview of the steps and procedures

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appropriate for use in the evaluation of program impacts. The second half of the report applies these three elements to the development of an evaluation plan for the Navy's Shore Equal Opportunity Program (SEOP).

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EVALUATION OF NAVY HUMAN RELATIONS TRAINING FOR CIVILIAN AND MILITARY SUPERVISORS AND MANAGERS– A CONCEPTUAL FRAMEWORK AND A CASE STUDY

Technical Report

Dale K. Brown

Prepared in connection with research under Office of Naval Research, Organizational Effectiveness Research Programs, Contract No. N00014-76-C-0163; Peter G. Nordlie, Principal Investigator.

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FOREWORD

Note should be made at the outset that the original title of the research to be performed under Contract No. N00014-76-C-0163 was "Evaluation of Navy Human Relations Training for Civilians." Changes in the form and content of human relations training in the Navy have occurred since the inception of the contract, however, so that the title of this report reflects a broader scope, *viz.*, human relations training for both civilian and military personnel in supervisory and managerial positions. This is the focus of the Shore Equal Opportunity Program (SEOP), the program discussed in the case study section of this report.

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PART I

CONCEPTUAL MODEL AND PROCEDURES FOR DEVELOPMENT OF AN IMPACT ASSESSMENT

CHAPTER I

STAGES IN THE DEVELOPMENT OF "HUMAN RELATIONS"[1] PROGRAMS IN THE MILITARY DEPARTMENTS

The programs now in existence within the military departments which deal with "human relations" are rather more sophisticated efforts to deal with a complex set of social issues than were their predecessors. The turbulent social conditions of the late 1960's and early 1970's prompted the military to recognize and respond to a real need to improve the state of relations among military personnel of different racial and ethnic backgrounds. The earliest programs established for this purpose were assembled on a crash basis, with little or no experience in the area to guide their development. They grew directly out of widespread dissatisfaction among minority group members over the treatment they were receiving, both from whites as individuals and from the white-oriented system. This dissatisfaction led to deep hostility toward that system and resulted in threatened and actual interracial violence, with confrontations occurring both between minority and white enlisted personnel and between minority enlisted personnel and the military authority structure.

The earliest of the military race relations programs focused on *individual racism,* and tended to operate on an individualized basis. Minorities aired their grievances, from distant past to the present, and whites were compelled to listen, perhaps for the first time. Interracial confrontations were staged or created in a controlled environment with the intent of increasing white awareness about the status and treatment of minorities in our society and with the hope of increasing the feelings of guilt among whites. This would lead, it was hoped, to changes in white attitudes toward minorities, with consequent improvement in minority status and treatment.

This early method for dealing with race relations can be viewed as Stage One in a developmental process which continues today (see Figure 1). Stage Two, which was entered when the initial crisis period had receded sufficiently to allow a re-thinking of approach,

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[1] As used in this document, the term "human relations" is restricted to the topics of race relations and equal opportunity.

Figure 1

Stages in the Development of Human Relations Programs

	Stage 1—Race Relations	Stage 2—RR/EO	Stage 3—EO
Impetus	• Minority dissatisfaction → *hostility, violence*	• Subjective minority dissatisfaction	• Discriminatory impacts of personnel decisions on minorities and women
Mode of Action	• Confrontation mode; historical perspective to create "white guilt"	• Educational mode	• Training mode
Focus of Program	• Personal racism, individual experiences	• Personal racism (and sexism) plus institutional discrimination	• Institutional race and sex discrimination
Objectives	• Attitude change hopefully leading to behavior change in the long run	• Knowledge increase, attitude change, ultimate behavior change	• Knowledge increase, perceptual change, with direct implications for behavior change; some hope that attitudes will change in the long run
Target Audience	• General military population, especially whites	• General population, both military and civilian	• Decisionmakers

employed slightly different objectives and methods. This second stage was based on more of an "intellectual" than an emotional foundation. A more traditional educational mode of operation was used to supplement or replace confrontation as a learning tactic. The scope of the programs was broadened to take into account the concept of institutional discrimination as well as individual discrimination. The objectives of Stage Two were to create attitude change and increase the level of relevant knowledge in the general population, with the hope that behavior change would result in the long run. Later developments of the Stage Two model have included sex discrimination as well as racial, and have become increasingly more concerned with eliciting behavior change, with or without attitude change. At this stage, also, civilian employees of the military began to be included in the target audience.

Stage Three in the process is now beginning to develop. This stage focuses on institutional discrimination, and the impact of the supervisor or manager as a decision-maker. The underlying assumption is that every personnel decision made by a supervisor or manager is affected by equal employment opportunity statutes and policies and, in turn, has implications for the overall status of EEO within the organization. (The process whereby this occurs is described in Chapter II.)

Stage Three represents a departure from previous stages on several additional dimensions, also. In terms of objectives, the major goal of a Stage Three program is to change behavior—attitude change is *not* an objective. Another clear difference is that Stage Three programs are *training* programs, rather than traditional educational programs. This means that in Stage Three, the sought-after change is on a job-related skill of the supervisor or manager; i.e., the skill of making personnel decisions. General "awareness" (of historical events, of cultural differences, etc.) in the Stage Two sense, is not of concern. For a Stage Three program to be successful, it must create the conditions—knowledge, perceptions, and motivation—for a supervisor or manager to make every personnel decision in light of its equal opportunity implications. Whether the motivation is to do what is "morally right" or simply to avoid a lawsuit is not of direct concern to the program.

The categorization of human relations training into these three stages may be somewhat artificial in that no specific program needs to be a "pure" example of any type. Any program is likely to emphasize one stage or another, however.

The Shore Equal Opportunity Program (SEOP), the focus of this document, has the defining characteristics of a Stage Three program and is, in fact, one of the very few existing examples of that type.

CHAPTER II

A MODEL OF THE PROCESS WHEREIN INSTITUTIONAL DISCRIMINATION ORIGINATES

Institutional discrimination is the central concept around which a Stage Three program is organized. It is impossible, however, to modify the reality of institutional discrimination without dealing directly with those individuals whose behavior creates institutional discrimination. In this chapter, a model is proposed which follows the process from a single decision to the cumulative picture of institutional discrimination in the organization.

Institutional racial discrimination has been defined as:

> . . . a difference in what happens to people in an organization—
> a difference which:
>
> (1) is correlated with skin color;
>
> (2) results from the normal functioning of the organization;
>
> (3) operates to the consistent disadvantage of persons of a particular skin color.[2]

Institutional discrimination on the basis of race, sex, national origin, religion, age, or physical handicap is the central focus of a Stage Three training program. The participants in a program of this type are individual supervisors and managers who have the responsibility for making a variety of personnel decisions, all of which have EEO implications. Figure 2 depicts a model which links together the behavior of specific individuals with institutional outcomes.

The model indicates that two sets of conditions comprise the environment within which decisions are made. *Organizational variables* include both formal and informal aspects

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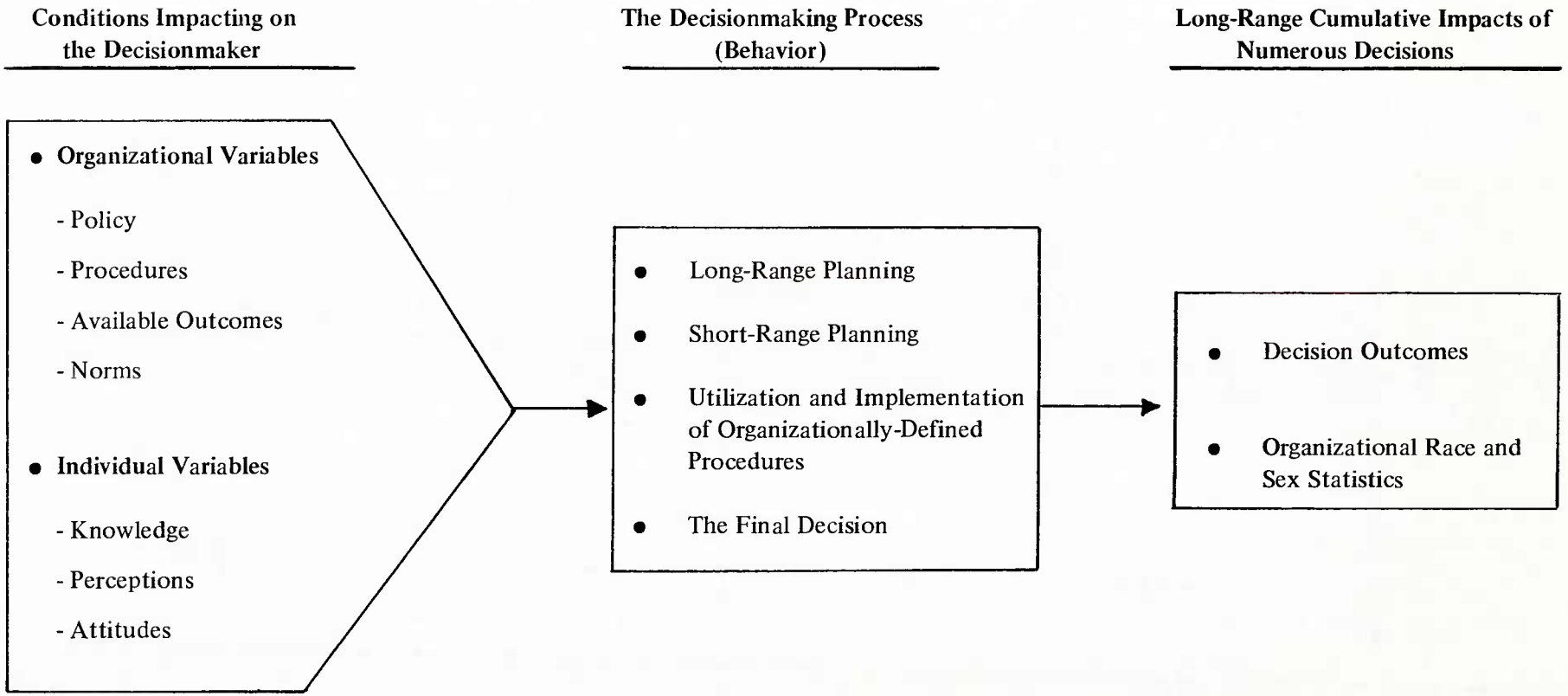
[2]Peter G. Nordlie, *Measuring Changes in Institutional Racial Discrimination in the Army* (McLean, Va.: Human Sciences Research, Inc., March 1974), p. 9.

Figure 2

Conceptual Model of the Process wherein Institutional Discrimination Occurs



of the institution. *Individual variables* are those conditions inherent in the individual decision-making process. The cumulative impacts of all such decisions made within the organization are reflected in statistics which describe the makeup of the organization on some relevant dimension; e.g., race, sex, age, etc. It will be useful to look at each element of the model in somewhat greater detail.

Organizational Variables

Each personnel decision is made within some organizationally-defined framework consisting of formal rules and regulations, policy guidelines and standing operating procedures (SOP's); in most cases, the range of available outcomes for a given type of decision is also defined by the organization.

In addition to the formal aspects of the decision environment, such informal factors as peer group and reference group norms might also enter into a decision. Each decisionmaker has been socialized into the organization, has learned "do's and don't's" and shortcuts, and has learned which behaviors available within the formal structure are acceptable to his or her peers and organizational superiors. Thus, the *full range* of options might never be used or even be considered.

Taken together, these formal and informal factors delimit the organizational environment within which the decisionmaker operates.

Individual Variables

A second set of variables determines how those limits are perceived and observed. These include:

> **Knowledge**—The decisionmaker can only comply with rules and regulations if he or she knows what they are. The same is true of SOP's and of informal behavior norms as well. Equally important is that the supervisor be aware of the objective facts—as opposed to myths—concerning the treatment and status of minorities and women in the workforce at large and in the specific organization.

Perceptions—The individual's perception of reality is, for that individual, reality. This is true for the decisionmaker's perception of the formal organizational factors described above. It is also true of that individual's perception of what constitutes "appropriate" roles for minorities and women, and of the "inherent" limitations on the skills and abilities of these groups.

Attitudes—Even in a Stage Three program where attitude change is *not* an explicit objective, it must be recognized that attitudes can and do affect decisions. Such attitudes as those toward organizational policy, toward EEO objectives, toward working with peers who are of minority races, toward working mothers, and so forth, can have large influences on decisionmaking behaviors and on decision outcomes. It is an implicit assumption in a Stage Three program, however, that knowledge and perceptual factors can outweigh attitudes in determining behavior.

Decisionmaking Behavior

The central portion of the model deals with the manager's behavior. This includes a variety of acts which lead up to a decision as well as the actual "go-no go" decision. It would be useful at this point to consider the various types of decisions the supervisor or manager participates in as part of the job. Conversations and interviews with first- and second-line supervisors, with Navy civilian personnel officers, and with EEO officers have resulted in the following list of decisions where the supervisor or manager plays a major part, usually the primary role, and sometimes has exclusive authority.

- Selection of personnel to fill vacant positions.
- Decisions concerning advancement of an individual within the organization.
- Decisions relating to job reclassification, either upgrading or downgrading.
- Selection of individuals for specific training opportunities.
- Selection of training programs for specific individuals.

- Utilization of the skills acquired through training.
- Duty assignments.
- Disciplinary actions.
- Routine evaluation of the performance of subordinates.
- Recommendations for awards, rewards, commendations, and other positive acts.
- Reduction-in-force (RIF) decisions.
- Termination of employment.

Once again, these decisions are ordinarily not the responsibility of the supervisor alone. Rules, regulations, and SOP's apply. The personnel office is involved as are also boards, panels, and committees in certain of the decisions. But the supervisor can have the major impact in every case, if the process is carried out as specified.

Take long-range planning, for example. A manager can plan a year or more ahead by looking at the ages of his or her employees and by planning in advance for replacement of retirees. Also, to some extent, transfers and promotions can be anticipated in advance.

In a more immediate sense, the short-range planning surrounding a decision can be extremely important. If the supervisor waits until a vacancy occurs and then decides that the vacancy must be filled immediately, rather than either planning ahead or allowing more time, the number and type of available candidates might be quite limited. It has been said that the shorter the time the personnel office is given to identify candidates for most vacant positions, the more likely the candidates are to be white males. Given greater lead time, however, qualified minorities and women can often be located.

Similar kinds of potential poroblems exist in regard to the ways in which other organizationally-defined procedures are implemented, such as keeping interview notes, assigning "objective scores" to candidates for qualifications, etc.

The final decision, then, is only a small segment of the behavioral sequence, a segment which can be largely predetermined by what comes before. It is, however, the element that gets recorded in the organization's statistics.

Institutional-Level Outcomes

The very definition of institutional discrimination precludes us from looking at it in terms of individual decisions. Even though, in fact, *personal* racism, sexism, etc., might have entered into particular decisions, we assume that any overall race or sex imbalance that exists in an organization can best be approached on a systemic basis. Institutional discrimination is only evident in the long-run, cumulative impacts of numerous individual decisions of various kinds made by all decisionmakers in the organization over some period of time. The statistical picture of the composition of the organization is made up of the outcomes of these individual decisions.

The generic types of statistics referred to here are the types the courts are looking to in class-action lawsuits which charge discrimination under Title VII of the Civil Rights Act of 1964 (as amended in 1972). These include:

1. **Demographic Statistics**—these compare the composition of the work force to the population at large as described by census data for the Standard Metropolitan Statistical Area (SMSA) in which the employer operates for locally-recruited jobs, and by national statistics in the case of professional and highly-skilled jobs where the national market serves as the recruiting area.

2. **Concentration Statistics**—a measure of the numerical balance of protected class members in comparison to other employees as they are distributed throughout the organization; e.g., concentration of minorities or women in certain job assignments, departments, or work areas.

3. **Comparative Statistics**—a measure of the rate at which employees of various classes are able to take advantage of the benefits of an employment situation. E.g., if 50 percent of qualified candidates for promotion are black, 50 percent of promotions should be of blacks, even if only two percent of the work force is black.[3]

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[3]Source: John B. Zimmerman (Lt., USN), "What the Courts are Saying," *Advisor* (Fall 1976). Reprinted in *Equal Opportunity Current News*, 113 (January 15, 1977), pp. 7-11.

Summary

In summary, the model describes the process whereby the formal and informal environment within the organization interact with the individual decisionmaker's knowledge, perceptions, and attitudes to determine the way that individual will act in the behavior sequence leading up to and culminating in a decision. The impacts of these individual decisions are aggregated into a statistical picture of the organization. It is this statistical picture, showing bias in a population of events, upon which judgments are made about the presence or absence of institutional discrimination.

Implications of the Model for Stage Three Training Programs

What kinds of impacts can be expected to result from a training program of the type labeled Stage Three? The full range of potential impacts is somewhat broader than those which usually are stated as explicit objectives. In speaking of *potential* impacts, the following would be included:

- **Efforts on the part of the supervisor or manager to modify the organizational conditions within which personnel decisions get made.** One potential effect of training is that an individual might, as a result of training, attempt to change some aspect of the organization. This could take the form of a lawsuit to change some procedure or regulation, or it might be an informal lobbying effort to change a local policy. It could also be some effort to modify the norms which exist concerning EEO among the individual's peers or superiors. It might even be in the form of new behavioral guidelines for the supervisor's employees (although this is more likely to be a result of a Stage Two program which places more emphasis on individual discrimination). These potential effects could conceivably be in a negative direction; e.g., an effort to drop the policy of affirmative action because the individual perceives it as "reverse discrimination." However, any such effects from a *successful* Stage Three program would be in the direction favorable to EEO.

- **Increases in knowledge levels on topics relevant to EEO.** Improved levels of factual knowledge and understanding of the nature and objectives of EEO should be expected from training. The supervisor should go away from the program knowing more about what is expected and required of supervisors, what the organization's policies and procedures are in regard to EEO, what options are available, and so forth. The level of detail will depend in part on the objectives of the particular training program, but might include such information as the entry requirements for a specific training program to create a vertical career path for an employee, or the legal requirements for keeping concurrent notes on the process of selecting an individual to fill a vacancy.

- **Modification of the trainee's perceptions of the framework within which he or she makes decisions.** As was mentioned earlier, the individual's perception of reality is, for that individual, reality. A Stage Three program should have as a goal the creation of perceptions which match objective reality as closely as possible. This might include: clearer perception of the individual decision-maker's impact on EEO; more realistic perceptions as to what constitute artificial (*versus* legitimate) barriers; a clearer perception of the difference between the legally-available options and the prevailing norms; i.e., what is possible as compared to "what is done." Perceptual change on numerous dimensions is possible within such a program.

- **Change in the attitudes of the decisionmaker.** It is possible that some attitudes will change as a result of Stage Three training. We need not specify a mechanism for any such change. It might result from increased knowledge or from modified perceptions, or it might occur simply in imitation of or identification with a particularly charismatic trainer. We need only assume that some attitudes will be more or less vulnerable to change, and that change is possible, even if not intended.

- **Behavioral change in connection with the decisionmaking process.** If the program is successful, most graduates will have at least the requisite knowledge and perceptions to allow for behavior change in the desired direction. The skills will be available, but whether or not they are applied appropriately in actual practice is beyond the scope of the trainer and the training programs.

- **Increase in the motivation of the supervisor or manager to apply newly-acquired principles concerning EEO.** A final area in which program impacts might possibly be felt is motivation of the graduate to put into practice what he or she has learned in the

training course. The nature of that motivation may vary from person to person, but changes in motivational level might well occur within the structure of the training program.

Training Program Objectives

How do these potential impacts of a Stage Three training program relate to the explicit and implied goals of such a program? By definition, the ultimate, long-range goal of a Stage Three program is to effect a change in the statistical picture of the organization so that all numeric indicators reflect an absence of institutional discrimination. The more immediate objective is to modify the decisionmaking behavior of each individual program participant as a means to achieving the ultimate goal. The interim objectives seen as necessary to the desired behavior change are increased knowledge and the creation of realistic perceptions to enable the behavior change to occur. And implicit in this sequence is the goal of motivating the trainee to implement his upgraded decisionmaking skills in actual practice. To repeat, attitude change is not an explicit goal, nor is it even implied, although it would be welcomed as a serendipitous side effect. It can also be assumed that no effort will be directed at creating change in the formal organizational conditions, and that no change in the EEO-related attitudinal and behavioral norms is intended. Figure 3 presents program objectives in diagrammatic form. Keep in mind that the achievement of institutional change is to be accomplished through the medium of individual behavior change.

Figure 3.

Stage Three Program Objectives

Explicit Instrumental Objectives

- Increased Knowledge Levels
- Realistic Perceptions

Implicit Instrumental Objective

- Motivation to Put Upgraded decisionmaking Skills into Practice

Interim Objective

- Change in Patterns of Behavior Employed in the Decisionmaking Process

Ultimate Objective

- Absence of Institutional Discrimination

CHAPTER III

PROGRAM EVALUATION

Now that the types of programs of concern here have been described, methods and procedures for evaluating the impacts of such programs will be discussed.

In their treatment of a proposed policy for evaluation of federal programs, Wholey *et al.*, identify four types of evaluation: program impact evaluation; program strategy evaluation; project evaluation; and project rating.[4] The first of these, program impact evaluation, is defined as ". . . assessment of the overall effectiveness of a . . . program in meeting its objectives, or assessment of the relative effectiveness of two or more programs in meeting common objectives" (p. 25). This is the type of evaluation we will be concerned with here on the assumption that it is the most generally applicable.

These same writers describe evaluation as having the following distinguishing characteristics.

> Evaluation (1) assesses the *effectiveness* of an *on-going* program in achieving its objectives, (2) relies on the principles of research design to distinguish a program's effects from those of other forces working in a situation, and (3) aims at program improvement through a modification of current operations. (p. 23.)

Figure 4 presents a skeletal model of the evaluation process. Each element of the model is discussed below in conjunction with its specific application to a Stage Three EEO training program.

The fundamental impact evaluation questions are:

1. Does training have an effect on those individual variables which determine decisionmaking behavior?

2. Does training have a direct effect on decisionmaking behavior?

3. Does any long-term impact on indicators of institutional discrimination occur as a result of training?

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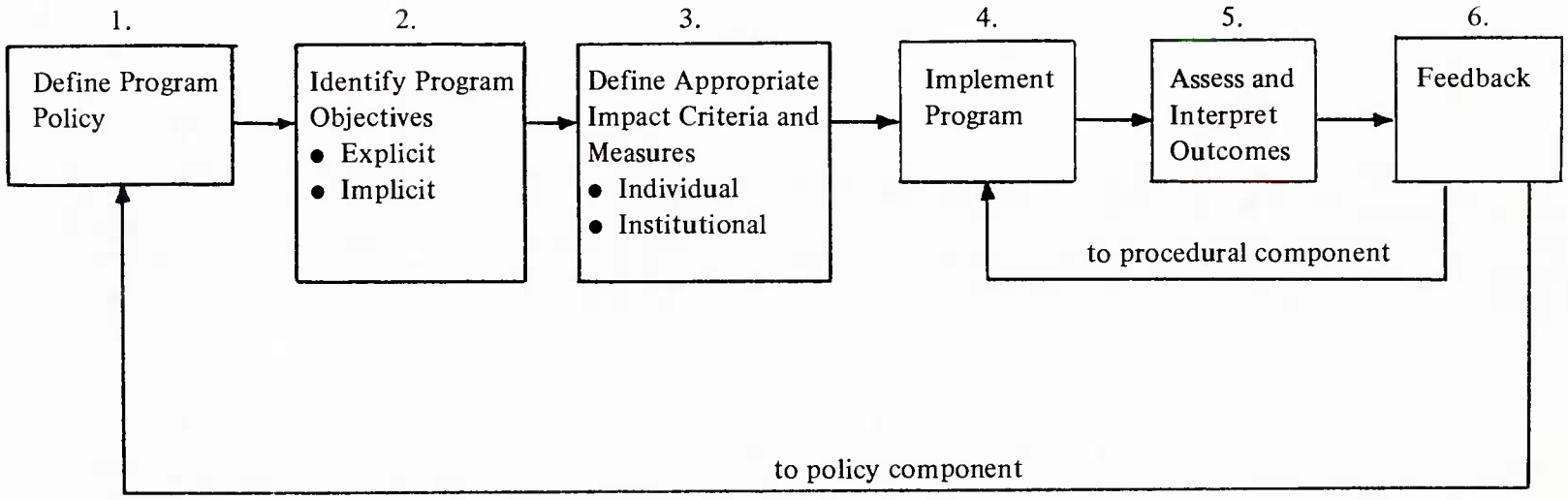
[4]J.S. Wholey, J.W. Scanlon, H.G. Duffy, J.S. Fukumoto, and L.M. Vogt, *Federal Evaluation Policy: Analyzing the Effects of Public Programs* (Washington, D.C.: The Urban Institute, 1973), p. 24.

Figure 4.

Program Impact Evaluation Model



To maximize the likelihood that an evaluation of program impacts will result in answers to these questions, several conditions must be met.

Policy Statement and Identification of Objectives

First, a clear-cut statement of program policy, procedures, and objectives must be committed to writing. Ideally, this will be accomplished by the operating agency, but often it is incumbent upon the evaluator to produce or clarify such a statement, especially in regard to defining and clarifying the explicitly recognized program objectives and, hopefully, to make explicit those objectives that are implied by the selected approach. This is done in the first two steps of the evaluation model.

For a Stage Three program we have identified the general level objectives. However, each program should be defined in terms of much more specific and detailed objectives. For example, within the intermediate objective of "modifying decisionmaking behavior" we would want to go much farther toward detailing program expectations, to include such objectives as:

- inducing the supervisor or manager to perform a review of his work unit to identify imminent retirements, training needs, reclassification needs, etc., no less than annually;
- inducing the supervisor or manager to provide the personnel office with sufficient lead time to allow identification of qualified female and minority candidates to fill a vacancy;
- inducing the supervisor or manager to request specifically, in writing, that the personnel office make every effort to provide women and minority group members as qualified candidates to fill a vacancy; etc.

The more specific and detailed the objectives are, the easier it is to accomplish the succeeding steps in the evaluation.

Identification of Appropriate Impact Criteria and Criterion Measures

Step 3 in the model represents criterion development, which follows closely from identification of objectives. In the case of the ultimate criterion of program impact; i.e., statistical indicators of discrimination, the appropriate measures are usually obvious, and include measures which reflect any and all of the decisions in which the supervisor/manager take part. In certain intermediate stages, however, the specific impact criteria to be measured may be less obvious if objectives are not detailed enough. Compare, for example, the relative problems involved in measuring achievement of the same objective stated in two different ways. An intermediate objective was stated above as:

- inducing the supervisor or manager to provide the personnel office with sufficient lead time to allow identification of qualified female and minority candidates to fill a vacancy.

There are two obvious drawbacks to this statement of an objective in regard to the evaluation process. One is use of the term "sufficient lead time"; the other is the implication that qualified female and minority candidates will be available, are interested, and can be identified if "sufficient" time is allowed. The *evaluation* question is one which can be answered only if the operating agency provides some *policy* decisions upon which a more specific objective statement can be based. If it is determined that one month is an "adequate" amount of notice in most instances to allow the personnel office to identify female and minority candidates who do exist and are interested, then the statement of this objective might read:

- inducing the supervisor or manager to allow at least one month's time for the personnel office to identify qualified female and minority candidates for a vacant position.

The implication is that, if no such candidates are identified within that month, the supervisor need delay no longer and may proceed to select from among the candidates available at that time, even if all are white males. In any case, it is assumed that every effort has been made to adhere to sound EEO considerations.

If, however, the operating agency will be satisfied only if every vacant position has at least one female and/or one minority group members as a viable candidate, it may be necessary to remove any time limit. The objective might then be stated as:

- inducing the supervisor or manager to delay filling a vacant position until at least one female and/or one minority group member is identified as a qualified candidate.

The criterion to be assessed in the first case is rather straightforward; i.e., is there a one-month period between the opening date and closing date of the search? In the other situation, the criterion is equally obvious, but quite different: Was a qualified minority or female candidate considered? The two are equally readily measurable, but have vastly different implications from a policy standpoint and from the perspective of the supervisor, who has a job to perform as efficiently and effectively as possible.

The next step at this stage in the evaluation process involves the translation of criteria into specific criterion measures. In some cases appropriate measures will already be available in the form of items, scales, and instruments developed elsewhere, but this should not be relied on as a ready source of criterion measures. The number of such measures is not large, and there is a high likelihood that their transferability to new uses will be quite limited, especially as regards measures of specific cognitive (knowledge), perceptual, and behavioral objectives of Stage Three EEO programs. For the most part then, new measures will have to be created for measurement of these individual impact criteria.

Measures of the impacts of training on the individual involve a number of considerations. Certain of the individual impact variables (e.g., perceptions) are "internal states" of the decisionmaker, and the evaluator must rely on self-reports as the major data source. These self-reports are notoriously susceptible to distortion, either deliberate or unconscious, as a result of the perceived social desirability of certain responses. The term "demand characteristics" is used to describe the dimensions of the situation which the respondent perceives as the questioner's expectations with regard to the respondent's answers. A "test-wise" respondent might select the "right" answers to specific questions to earn a "good score" on a specific scale or factor. In other words, he or she will say what the questioner

"wants to hear," rather than answering from a purely objective standpoint. This can and does occur without the respondent's awareness that it is happening; or it might be done deliberately. In any case, the evaluator must try to develop attitude and perception measures which are subtle and which minimize demand characteristics.

A second type of control over this problem is to seek validation of the respondent's reported "internal states," either from outside sources—observed behaviors or documentary evidence, for example—or by means of a validity scale built into the questionnaire.

Knowledge, also an internal state, has a separate set of issues. The knowledge measure must be reliable (i.e., having an acceptably small error component which is not systematic in direction) and valid in terms of its relevance to the training program's content and objectives. Specific items should be selected so as not to be so easy that everyone gets them correct, nor so difficult that nobody does.

Behavior measures can be either relatively easy or very difficult to obtain. Self-reports of behavior or behavior intentions are subject to demand characteristics. Observation of day-to-day behavior is usually quite inefficient and uneconomical, especially for infrequent events. However, there are other appropriate measures for some behavior impact criteria relative to Stage Three programs. These may be of the type described earlier; e.g., time lags between beginning and ending of a process (filling a vacant position), measurable from records. Or they may be obtainable from memoranda, correspondence, process notes maintained during a particular decisionmaking period, etc. The evaluator's job in this instance is to put together as meaningful a package of behavior measures as possible within the bounds of the available budget and the availability of accurate and readily accessible information.

The assessment of program impacts on the organization as a whole is based on two kinds of measures, one statistical, the other more of a narrative nature. The non-statistical aspect might consist of periodic status reports, management reviews of organizational practices, "human resources" assessment reports, etc. The statistical measures must be selected to reflect the outcomes of the kinds of decisions the program hopes to affect; i.e., decisions about hiring, termination, training, assignments, travel status, and so forth.

Earlier (Chapter II), three types of organizational statistics were identified which are used as evidence in civil court suits concerning allegations of employment discrimination. The three types of statistics are demographic, concentration, and comparative measures of relative presence, absence, or maldistribution of protected classes of individuals.

The interpretation of these statistics rests in the concept of "expected frequency"; i.e., what the statistics would look like if arbitrary discrimination were not occurring? This concept requires the identification of an appropriate *base* or *comparison population* for each separate analysis.

Take as an example the relative distribution of women as compared to men in the supervisory levels within a specified blue-collar job series. On a *demographic* basis the base population would be the general population in the local recruiting area. In terms of *concentration* statistics, that job series might best be viewed in comparison with the percentage of female supervisors in certain other series; e.g., clerical. Finally, *comparative* statistics might use as a base population the number of women who are eligible for promotion to supervisor in that series. Each type of statistic shows a somewhat different picture.

Thus, it is extremely important that the appropriate comparison be made for each specific purpose and that an appropriate base population be identified for determining the expected frequency upon which a statistical indicator is to be based.

The preceding discussion brings out the need for the evaluator to attend to multiple data sources in assessing program impacts. A variety of sources should come into consideration, including, but not necessarily limited to:

- the supervisor or manager;
- that individual's supervisor;
- the individual's subordinates;
- statistical data banks;
- records and files; and
- other written documentation.

The final decision as to which of these sources to tap, and in what ways, will be made on the basis of a variety of considerations, both scientific and practical.

Selection of an Evaluation Design

The selection of an evaluation design represents a critical step in the impact assessment process from a scientific point of view. The evaluation design is the plan for carrying out the collection and analysis of impact data, and is equal in importance to the development of relevant, reliable, and valid measures. Both are essential if the evaluation is to provide maximally usable feedback; the value of results is directly related to the quality of the impact measures and the evaluation design.

The ideal situation for the evaluator is one in which he or she can develop the design prior to implementation of the program being evaluated, and can have some control over the relationship between the program and the impact assessment. The best type of design for such a situation, in the opinion of Wholey, *et al.*,[5] is that referred to by Campbell and Stanley[6] as a "true experimental design." Three such designs are available for evaluation of the effects of a single program strategy and one for comparing alternative strategies.

The first of the single strategy evaluations gives a complete assessment of program effects alone, and is referred to as the Pre-Test/Post-Test, Control Group Design. This consists of randomly assigning persons to either an *experimental group* which experiences the training program or a *control group* which does not. Criterion measures are acquired before and after training for the experimental group. For the control group the same measures are taken at the same times as for the experimental group except that no treatment (training) occurs in the intervening period. Comparison of the results for the two groups allows judgments to be made about the impact of training. Figure 5 is a depiction of this design.

Figure 5.

Pre-Test/Post-Test Control Group Design

Group*	Measurement	Treatment	Measurement
Experimental	Pre-Test	Training	Post-Test
Control	Pre-Test	----	Post-Test

*Assignment to groups must be random in all designs discussed here.

[5]Wholey, *et al.*, *ibid.*, p. 88.

[6]D.T. Campbell and J.C. Stanley, *Experimental and Quasi-Experimental Designs for Research* (Chicago: Rand McNally, 1963).

In this design, not only can the effects of training on the experimental group be detected in comparison to the control group, but also, a "change score" (post-test minus pre-test) can be determined for the experimental group and compared with a similar score for the control group.[7]

If there is reason to believe that the process of measurement in itself will affect the results obtained, the Solomon Four-Group Design is recommended. If, for example, it is suspected that knowledge scores on an appropriate measure of Stage Three program effects will be influenced by the pre-test experience, this design would be appropriate because it detects such effects. It can be represented as in Figure 6.

Figure 6.

Solomon Four-Group Design

Group	Measurement	Treatment	Measurement
Experimental 1	Pre-Test	Training	Post-Test
Control 1	Pre-Test	- - -	Post-Test
Experimental 2	- - -	Training	Post-Test
Control 2	- - -	- - -	Post-Test

In the present context this would be a valuable design if, for example, it were feared that respondents would actively seek out the answers to the knowledge questions after the initial testing, or if it were suspected that, having answered attitude or perception questions once, the respondent might make judgments as to the "right" and "wrong" answers (in terms of demand characteristics), and systematically modify their post-test responses, even in the absence of any intervening training.

The third design of this set is labelled Post-Test Only, Control Group Design, and is represented in Figure 7.

Figure 7.

Post-Test Only, Control Group Design

Group	Measurement	Treatment	Measurement
Experimental	- - -	Training	Post-Test
Control	- - -	- - -	Post-Test

[7]Change score analysis is a relatively complex matter, and the analysis of raw change scores is seldom recommended. See discussion later in this chapter.

Note that here, as compared with the pre-test/post-test design, change score analysis is not possible; all judgments of program impact being based on comparison of post-test scores.

The recommended "true experimental design" for comparison of alternative program strategies is represented in Figure 8.

Figure 8.

Comparison of Alternative Program Strategies

Group	Measurement	Treatment	Measurement
Experimental 1	Pre-Test	Training Program A	Post-Test
Experimental 2	Pre-Test	Training Program B	Post-Test
Experimental 3	Pre-Test	Training Program C	Post-Test
Control	Pre-Test	- - -	Post-Test

This is an extension of the Pre-Test/Post-Test, Control Group Design for a single program evaluation which allows for comparison of the effects of two, three, or more different approaches to accomplishing program objectives. One might be comparing three programs based on a lecture approach, a small group guided discussion approach, and self-instruction, respectively, for example. Once the most efficacious strategy has been identified, the others might be abandoned. Caution is advised, however, in that different strategies might be more or less effective for different purposes; e.g., lecture for knowledge change and small group discussions for perceptual effects. In this case, a combination program might be the best bet.

Remember, all of these designs depend upon random assignment of people to treatment groups, and this is not always an available option. Where random assignment is not possible, some pre- or quasi-experimental design will probably prove to be of value. Wholey, *et al.*,[8] refer to the Non-Equivalent Comparison Group Design (Campbell and Stanley Design 10, see Figure 9), as "well worth using in many instances in which [the three true experimental designs recommended for single program evaluation] are impossible." Note that this is again the basic Pre-Test/Post-Test, Control Group Design, but without the assurance that is provided by random assignment that the groups are equivalent before the program. The evaluator must select the comparison (control) group to be as much like the experimental group as is possible and convenient, on relevant dimensions.

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[8]Wholey, *et al., op. cit.,* p. 88.

Figure 9.

Non-Equivalent Comparison Group Design

Group	Measurement	Treatment	Measurement
Experimental	Pre-Test	Training	Post-Test
Control	Pre-Test	- - -	Post-Test

In many cases involving human relations training, it will be necessary to employ this design or one of two time-series designs. The Time-Series Experiment (Campbell and Stanley Design 7) employs several pre- and post-test measures (see Figure 10), but without control group.

Figure 10.

Time-Series Experiment

Group	Measurement	Treatment	Measurement	Measurement
Experimental	Pre-Test	Training	Post-Test	Followup

A design which incorporates the best features of these last two is the Multiple Time-Series Design (Campbell and Stanley Design 14), as depicted in Figure 11.

Figure 11.

Multiple Time-Series Design

Group	Measurement	Treatment	Measurement	Measurement
Experimental	Pre-Test	Training	Post-Test	Followup
Control	Pre-Test	- - -	Post-Test	Followup

Finally, where the program is in operation before the evaluation design is selected, the possibility of taking a pre-test measure is precluded and no appropriate control group is available, the One-Shot Case Study Design, despite its decided shortcomings, may be all that is available.

The need for "true experimental designs," control groups, and pre- and post-test comparisons might not be obvious to one whose interest is only in starting a program and keeping it running. This would be the person who is interested in process evaluation, and who wants to know, more than anything else, how to run the program most efficiently. But program evaluation has the capability to provide much more information than that, when used judiciously.

The policymaker can use the evaluation results as a basis for making decisions about the future course of the program. Those in charge of day-to-day operation of the program can learn what works and what doesn't from immediate feedback of evaluation results. And the individual with a research orientation can explore certain hypotheses about training effects in an effort to improve program operations and, as a result, program effectiveness.

In short, one stands to gain a lot by a scientific approach to program evaluation. It is essential that the soundest evaluation design available under the circumstances be employed, and that planning for evaluation begin during the early program planning stages.

Assessment and Feedback of Impact Data

Once the program has been implemented and impact data acquired in accordance with the design selected, what does one look for in the data? Obviously, the program can be considered successful if changes in the desired direction occur with regard to: behavior; knowledge; perceptions; and indicators of EEO progress at the institutional level. The questions to be answered include:

1. Has change occurred?

2. Is the change sufficient to justify the expenditures involved in the program?

3. Is the change a persistent one; i.e., does it hold up over time, or is it fleeting and momentary?

The first of these is an evaluation question; the second a policy question; and the third a research question.

Measuring Change

Answering the basic question as to whether or not any change in the dependent measures occurs as a result of training can be a very complex process. The professional literature on measurement of change scores is substantial, and the evaluator must take a number of technical considerations into account. A recent paper by Hummel-Rossi and Weinberg[9] summarizes the major issues in change score analysis and provides guidelines for the measurement of change in various situations and for analysis of the statistical significance of the measured change.

The major problems these writers identify in the use of raw gain scores; i.e., post-test score minus pre-test score, are as follows:

1. low pre-test and post-test reliabilities;
2. the regression to the mean phenomenon;
3. the need to examine the relation between pre-test score and change score;
4. pretest-and post-test measures in different metrics.

Of these four, those most likely to occur in the context under discussion here are the first two, low reliability and regression to the mean.

The evaluator can reduce the problems created by low pre- and post-test reliabilities by creating measurement instruments which have high reliabilities. This does, certainly, require the foresight to allow adequate time for instrument development, with several pre-tests to eliminate sources of unreliability; or alternatively, the selection of pre-existing measures of acceptable levels of reliability. Regression to the mean, however, can occur with any measure where respondents can earn extremely high or extremely low scores; i.e., virtually any of the measures discussed here.

Hummel-Rossi and Weinberg discuss alternatives to the use of raw gain scores, including: estimate of true gain score; a base-free measure of change obtained by removing

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[9]Barbara Hummel-Rossi and Sharon L. Weinberg, "Practical Guidelines in Applying Current Theories to the Measurement of Change. Part I: Problems in Measuring Change and Recommended Procedures," *Catalog of Selected Documents in Psychology, 5* (1975), p. 226.

that portion of the post-test score linearly predictable from the pre-test score which removes the true pre-test score from the true post-test score; and use of partial correlation or multiple regression techniques. The authors recommend the last two approaches for most cases. They give examples of the application of analytic methods to several situations, including:

1. a one-group design, without control;

2. two or more groups, with random assignment of individuals; and

3. two or more groups, with members not randomly assigned.

Other designs are discussed, also, but they are less likely to occur within the context being discussed. The analytic procedures recommended for these designs are, respectively: raw gain score analysis; analysis of covariance; and large sample covariance analysis.

These approaches are appropriate for most of the designs acceptable for program evaluation purposes when applied to measures of individual change. One method of analyzing institutional change is by use of an index called the Difference Indicator (D.I.), developed under an Army Research Institute (ARI) contract with Human Sciences Research, and described in several research reports, the most recent of which[10] describes a method for assessing the significance of differences in the D.I.

The D.I. is based on the concept of expected frequency, as described earlier; i.e., what one would expect a particular index of race or sex representativeness to look like if, in fact, discrimination were not occurring. A more detailed description of the D.I. appears in Chapter V of this report.

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[10]Peter G. Nordlie and William S. Edmonds, *Commanders' Handbook for Assessing Institutional Racial Discrimination in Units* (McLean, Va.: Human Sciences Research, Inc., February 1977). (In Review.)

Policy Implications

Decisions concerning the continuation of a program, from a policy standpoint, will be based on an assessment of what results were obtained for the investment made. Impact assessment results are designed to provide information on which to base an answer to this question. It is up to the evaluator to see that it is sufficient for that purpose and that the policymakers have the information. No one can guarantee that policymakers will use the results to best advantage, and that is often beyond the scope of the evaluator's responsibilities.

The decisions involved will revolve around the issues of the practical consequences of changes that are observed and the cost to obtain those consequences. In some instances, even apparently minute changes in the desired direction may have practical significance and may justify relatively large expenditures. In other situations, policymakers might demand evidence of massive change for even relatively minor investment before they will be convinced of the good to be derived from the program. About the best to be hoped for is that the evaluation results will be accurately reflective of reality and that they will be easy to understand and interpret. Ease of interpretation is a decided advantage of the Difference Indicator mentioned above, when displayed graphically. The same cannot always be said of tests of statistical significance, unfortunately.

Research Implications

Finally, the duration of change is a research question. The phenomenon of the "sleeper effect," in which immediate change is small but change continues to build over time, and the "decay" phenomenon, in which immediate change occurs, but is soon followed by a return to pre-training levels of performance, are but two aspects of RR/EO training which have not been thoroughly studied. One would certainly want to know, for example, the optimum time between the initial training experience and some "refresher course" or other followup technique. The research aspects of evaluation design will allow for such issues as these to be studied, with the goal of improving future program results.

PART II

APPLICATION OF THE MODEL– A CASE STUDY

CHAPTER IV

HISTORY OF THE SHORE EQUAL OPPORTUNITY PROGRAM

The objectives of the contract under which the work described here was performed were originally stated as follows:

1. Determine the total set of training objectives for Navy human relations training programs for civilian personnel.

2. Develop criterion measures which reliably reflect the extent each of the training objectives is achieved.

3. Assess the impact of Navy human relations training programs for supervisors of civilians utilizing the criterion measures developed, and an appropriate research design.

4. Explore the relationships between various independent variables and the criterion measures.

5. Recommend changes in the training programs based on the assessment results.

At the outset, the focus of these efforts was understood to be a training program then under development by the Navy's Office of Civilian Manpower Management (OCMM).[11] This program, known as the Human Awareness Course, underwent a series of changes in orientation, content, and methods over time.

At the inception of the contract, the Human Awareness Course was under development as a vehicle for increasing the knowledge of first- and second-line Navy civilian supervisors concerning the dynamics of sexism and racism, with implications for behavior change to reduce, and eventually eliminate, arbitrary discrimination in personnel decisions. At the outset, the course fell into Stage Two of the category system described in Chapter I. At that time (summer 1975), the program was described by its authors[12] as having three major components:

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[11] The name of the agency has since been changed to Office of Civilian Personnel (OCP).

[12] Meeting held at OCMM offices on 12 August 1975.

1. Identification of the problem (sexism and racism)—Define what these things are, how they came to be, and what can be done about them.

2. Identification of reasons why the Navy must deal with the problem—Deal with productivity, morale, friction, hidden costs of discrimination; familiarize participants with the Self-Evaluation Questionnaire as a management tool.

3. Explanation of Navy and Federal laws and regulations—Identify pertinent statutes and directives; explain the development and EEO implications of Affirmative Actions Plans; etc.

The total orientation was an educational one, with the objective of changing behavior, and emphasis on practical consequences.

At the outset of the contract, the objectives of the Human Awareness Course had been defined only implicitly, by the content of the various modules incorporated in the course. The intent of the course was apparently to do, at a minimum, the following things:

- increase the level of awareness of civilian supervisors about the historical picture of the treatment of minorities and women in the U. S. work force;

- present a theory-based explanation of the nature of individual prejudice and discrimination;

- describe some common myths and stereotypes about women and minorities in the work force, and refute them with empirical evidence;

- make supervisors aware of the nature and objectives of Affirmative Actions Plans;

- inform supervisors about some methods of diagnosing the presence of racial and sex imbalances, inequities, or perceived problems within their work units, focusing on the Self-Evaluation Questionnaire (SEQ); and

- inform supervisors of policies, procedures, and programs which could be used to reduce institutional discrimination in the Navy civilian work force.

In an effort to clarify and make explicit the program's objectives at that time, HSR staff reviewed the detailed lesson plans being used then and formulated 88 statements which seemed to represent implicit objectives. These statements ranged from highly specific (e.g., objectives referring to understanding of specific training programs) to very general (e.g., objectives referring to movement toward parity for women and minorities).

This list of 88 statements was then reviewed by each of the Navy personnel directly involved in the development of the Human Awareness Course. Each of these twelve individuals rated each of the objectives on a four-point scale, as follows:

1 = This is an *extremely important* objective of the Human Awareness Course.

2 = This is a *moderately important* objective of the Human Awareness Course.

3 = This is an objective of *minor importance.*

4 = This is *not an objective* of the Human Awareness Course.

There was no single objective on which there was unanimous agreement as to its importance. There was, however, a kind of ordering of objectives from the general to the specific, the more specific the statement the *less* important it was perceived to be. Appendix A contains an ordered listing of the statements from most to least important.

Because of the overall orientation on which the course content was based, the objectives statements were phrased in terms of desired *cognitive* and *behavioral* outcomes. Very few carried even the slightest implication of attitude change as an objective, and these usually were phrased in terms of attempting to *motivate* the supervisor to undertake a certain type of action, which might, but does not necessarily, indicate that attitude change is a goal.

To make these objectives statements maximally applicable to the program as it is now envisioned, it might help to classify them as "ultimate," "intermediate," and "immediate" objectives. To begin with, there are several objectives, the more general ones, which fall into the "ultimate objective" category, measurable in terms of numerical indicators of institutional

discrimination. Included here are all those goals which refer to parity for minorities and women—parity across all GS and Wage Board grade levels, across all career areas, in new hires, in promotion rates, in assignment to training programs, in awards, in the awarding of outstanding performance ratings, and in the administration of disciplinary actions.

The category of "interim objectives," i.e., changes in patterns of behavior employed in decisionmaking process, would include such statements as those referring to: actions the supervisor can take to relate the Affirmative Actions Plan to his or her area of authority; decreasing the incidence of various negative and discriminatory acts on the job; utilization of the various EEO programs (Federal Women's Program, Spanish-Speaking Program etc.) and training programs (Apprentice Program, Administrative Co-Op Program, Worker-Trainee Opportunities Program, Upward Mobility Program, etc.); and ability to develop an Affirmative Actions Plan, if necessary, including establishment of numerical goals.

Those objectives which can be classed as "implicit intermediate objectives," i.e., motivating the supervisor or manager to utilize newly acquired knowledge and skills, would include the most general kind of motivational goals; e.g., motivating program participants "to do all they can to provide equal employment opportunity for all," as well as more specific kinds of motivation, for example: to attempt to achieve numerical goals set for them; to assess the EEO performance of subordinates realistically; to give continuous attention to measurement of EEO progress; to be intimately familiar with applicable AAP's; to be alert to signs of prejudice among subordinates; and to use existing programs to best advantage.

Finally, objectives concerning knowledge and perceptions, classed as "explicit instrumental objectives," would include all those objectives stressing awareness, understanding, and recognition of: such concepts as racism, sexism, prejudice, discrimination, numerical goals, and affirmative action; the relationship between the individual supervisor's behavior and the overall EEO picture; the goals of specific EEO programs and training programs and the appropriate utilization of those programs; EEO statutes, regulations, and official policy governing personnel decisions; myths and facts concerning working women and minorities in the work force; and so forth.

Note that a specific object or concept may relate to an objective in any and all of these categories. For example, the Worker-Trainee Opportunities Program has knowledge objectives—what is it, what are the eligibility requirements; perceptual objectives—is it a program with a bad reputation, and if so, what can be done to change that perception;

motivational and behavioral objectives—can more supervisors be motivated to use the program for EEO objectives; and finally, institutional-level objectives—does utilization of the program reflect a movement toward parity for women and minorities; and what career progression impacts does such increased utilization bring about?

Plans for implementation of the program were not firm at that early stage, beyond the desire to conduct a field test. No decision had been made as to how the program would be implemented on-site once development was completed. Two options were mentioned: a traveling team to visit various commands and activities on a rotating basis; and a procedure whereby program participants would travel to a central location, perhaps Washington, D. C., for the required three-day period. Also indeterminate was the identity of the personnel who would conduct the program, although the use of a specially-trained team, as opposed to use of the program's authors, appeared more feasible.

A field test of this preliminary version of the program was conducted at the Philadelphia Naval Shipyard during the period 3-5 September 1975. The course of instruction was presented by the authors of the five modules then in existence. Participants were about 30 first- and second-line supervisors from a number of separate Navy activities. They represented a variety of job series—clerical, blue-color, technical, and professional—and included men and women, with a few military personnel who were supervisors of civilian personnel taking part. Several of the participants had primary or ancillary duties as EEO coordinators, Federal Women's Program Coordinators, etc.

The program was well-received by participants, with only a relative few expressing any more than mild dissatisfaction, and then on specific aspects of the two-and-a-half day experience rather than overall negative feelings. Based on feedback from participants and on the perceptions of the program staff, it was decided to make some modification of the program and begin implementation on a pilot basis soon thereafter.

On the basis of this information, HSR set out to achieve the contract objectives stated above. Even as this was occurring, however, policy deliberations were taking place within the Navy which were to have a profound effect on the further development of the Human Awareness Course. As early as the Fall of 1975, the Chief of Naval Personnel was described[13] as having an interest in developing an exchange of EEO personnel and of training

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[13]Source: Meeting at OCMM, 12 August 1975.

experiences across military-civilian lines in the Navy. The military segment of the Navy at that time had considerably more experience with human relations training than did the civilian side, in the form of the UPWARD program, then about to enter Phase II. The UPWARD program for active duty Navy personnel began as a Stage One type of program aimed at a global kind of interracial, interethnic, intercultural "awareness." By the time UPWARD had reached a majority of its target audience, *viz.*, fleet personnel, a change to a more institutional-oriented educational program of the Stage Two type was contemplated.

The Navy's Phase II Program was planned along the lines of a systems improvement organizational development model. A team of specialists, known as an Equal Opportunity Assistance Team (EOAT), was to be employed to travel to each command to implement the program. After a thorough study of a given command's structure and functions, the team would visit the command, perform certain diagnostic operations on-site, in conjunction with command personnel, and provide feedback to the command structure. A command planning meeting was then to be held to develop a plan of action for correcting whatever deficiencies had been identified. Meanwhile, the EOAT would conduct training sessions for selected command personnel so that local personnel would have the requisite knowledge to conduct workshops within the command. This last step was an effort to insure command self-sufficiency in the HR/EO area.

Phase II was scheduled to include the shore establishment as well as the fleet. There are some major differences between the fleet and the shore establishment, however, that carried implications for this Phase II program. These included:

- the smaller number of minority personnel on shore as compared to the fleet;
- the presence of a majority (approaching 75%) of civilians in the shore establishment whereas the fleet is almost exclusively military; and
- the generally higher grade level of shore personnel compared to sea duty personnel.

These last two factors provide a bridge between Phase II and the Human Awareness Course, and would appear to be the basis for a more unified military-civilian EO/EEO program, and for the move toward a program more oriented toward supervisors and managers.

Over the intervening time period, a number of policy decisions have been made which will ultimately result in such a unified program. Although, at this writing, the final form of that program is not yet fixed in all details, Figure 12 illustrates the nature of the changes undergone by the original Human Awareness Course from its beginning to the present time (spring 1977).

Figure 12.

Modification in Process and Content Orientation
of the "Human Awareness Course"

Process

	Human Awareness Course (Fall 1975)		Shore Equal Opportunity Program (Spring 1977)
1.	Self-contained program	→	One segment of an overall organizational development process
2.	Educational orientation	→	Training orientation
3.	Pre-packaged program	→	Program tailored to dynamics within the command
4.	Program "imposed" on the command	→	Command participation and self-sufficiency
5.	Limited command involvement	→	Command participation in diagnosis, planning, decisionmaking, implementation
6.	Program staff undefined	→	Program conducted by specially trained traveling teams

Content

1.	Civilian orientation only	→	Combined military-civilian, with selection of appropriate modules for each command separately
2.	Global "awareness" focus	→	Emphasis on action-orientation, supervisor/manager behavior
3.	Primary orientation toward individual	→	Primary orientation toward the individual's role within the institutional framework
4.	Theoretical	→	Practical/applied
5.	Historical	→	Contemporary
6.	Academic approach to institutional measures of discrimination	→	Practical approach to discrimination and the implications of personnel decisions.
7.	Implicit distinction based on "morality" (right *versus* wrong)	→	Distinction based on "legality" (legitimate *versus* legally challengable behavior)
8.	Focus on sexism and racism	→	Focus on all forms of arbitrary discrimination; e.g., that based on age, religion, etc., as well as sex and race.

CHAPTER V

APPROACH TO IMPACT ASSESSMENT

In a discussion of the growing interest in and emphasis on evaluation as an area of specialization within the discipline of psychology, Sommer[14] differentiates the objectives of "research" from those of "evaluation" and concludes that the two are distinctly different. A study can, however, have both reserach and evaluation aspects within the same design, using a single method. The present study is an example of that combination. In it, the impact assessment ultimately hinges on the long-range changes which occur in patterns of employment. Interim stages of assessment, however, can be used to provide feedback to the program concerning what works and what doesn't, under what conditions, for what types of people, in terms of impacts on individual knowledge, perceptions, motivation, behavior, and even, perhaps, attitudes. Attitudes, in fact, seem to be a particularly notable example of a research focus, since the policymakers for the program have explicitly denied that attitude change is an objective. If one employs a particular design and a specific methodology to assess long-range institutional impacts, why cannot the identical design and method be used to research more immediate questions, to test hypotheses, so as to enhance the chances of achieving long-range impacts?

This is, in fact, the approach taken here. Measures have been suggested for assessing long-range institutional impacts, and for assessing immediate and intermediate impacts. These latter measures are also, in effect, tests of hypotheses concerning conditions of training. In addition, measures of attitude change are suggested purely as means for potential testing of hypotheses concerning immediate and long-range effects of cognitive, perceptual, and behavior oriented training on individual attitudes. In summary, research and evaluation measures are combined.

With regard to measures of institutional discrimination, little is said here about the content of such measures because the Equal Opportunity Project Office has developed

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[14]Robert Sommer, "No, Not Research, I Said Evaluation!" *APA Monitor, 8,* 4 (April 1977), p. 1.

a set of numerical indicators of EEO status. Ways of displaying and interpreting these indicators are discussed. However, primary emphasis is on measures of impact on the individual.

Assessment of Individual Impacts

The evaluation/research measures of impacts on individual participants in which there is interest here are behavior, knowledge, perceptions, and attitudes. In each case, the objective is to determine if and in what ways the training experience affected measures of these variables. Information from the analysis of impacts will be fed back to policymakers and to those personnel who dictate the way in which the program is implemented. To provide appropriate policy and procedural feedback, the analysis must be done in a systematic way.

Selection of a Design

The alternative evaluation/research designs available to evaluators of the SEOP are somewhat limited. Using the Campbell and Stanley[15] classification of designs for research, the acceptable alternatives are limited to the following:

- Design 7. The Time-Series Experiment
- Design 10. The Non-Equivalent Control Group Design
- Design 14. The Multiple Time-Series Design.

All three of these designs are "quasi-experimental" in nature in that either no control group is employed (Design 7) or random assignment of individuals to experimental and control conditions is not feasible (Designs 10 and 14).

The equivalent control group problem is a common one in social research. In the case of the SEOP, it is not feasible to enter a Navy activity and randomly select half of the supervisors and managers to receive EEO training and half to receive no training, for several reasons:

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[15]Campbell and Stanley, 1963, *op. cit.*

1. Because there is likely to be quite a bit of interaction among supervisors and managers within an activity and especially within a unit, the effects of no training would probably be contaminated as the trained and untrained personnel communicate about the training program.

2. Institutional measures of impact would be difficult, if not entirely impossible, to aggregate in terms of the two randomly selected groups.

3. Similarly, because of the drastically reduced frequency of occurrence of the decisions which would be reflected in institutional statistics, either much smaller (and less stable) frequencies would be analyzed, or the period of time over which data were aggregated would necessarily be extended.

These factors are in addition to other considerations, either logistic or ethical (e.g., the "rightness" of withholding EEO training from one group when the resources are readily available and in operation).

Since Design 14 contains the essential features of the other two designs, it should be given first consideration. This design can be summarized as follows:

Group 1	Pre-Test	Training	Post-Test	Followup
Group 2	Pre-Test	---	Post-Test	Followup

What is required here? First, a control group must be identified which is similar to the "experimental" group in all essential aspects. This means that, when training is to occur within a shipyard which does maintenance on sea-going vessels, and has a preponderance of personnel in job series related to that function, the appropriate comparison is with another shipyard with a similar job series structure rather than with an air station, a personnel research center, an engineering activity, etc. At a minimum, it is recommended that groups be matched on: type of activity; nature of the function performed; job series represented; and minority and female population sizes. The doubtful feasibility of this type of matching process for more than a few Navy activities is the biggest drawback to the use of Design 14.

Assuming that matching is possible, however, the next step is to compare the selected activities in terms of the pre-test scores on the variables selected as impact assessment measures. If they differ significantly on these measures, further steps must be taken; e.g., assessment of pre-test/post-test change by covarying out the pre-test scores from the post-test scores. In essence, however, if the pre-test difference is large, the comparison should not be made because the groups do not approach any semblance of equivalence, which is, after all, the purpose of matching.

If the activities can be matched, and if the pre-test scores are not significantly different, the comparison should be made. Note that in the design as depicted above, two post-training measures have been taken. One might be taken immediately after completion of training, to detect any immediate changes. This would involve only measures of knowledge, perceptions, and attitudes, however, since behavioral and institutional change would not yet have had an opportunity to occur. A second post-training followup measure on all variables might then be taken six months later, to detect the durability of any immediate change and the onset of behavioral change. For research purposes; e.g., to describe the course of any individual change over time, additional post-training measures might be added, either within the first six months or thereafter, or both. Care must be taken with regard to such factors as respondents' "learning the test," or poor test-retest reliability of the instruments, however, if this is to be done. Problems of this nature can be solved by extensive instrument development work to insure high reliability, by using two or more equivalent forms of the instruments, or by randomly assigning the participants to subgroups for retesting at different time intervals.

The shapes of the time-series lines over time would be expected to differ somewhat from one measure to another. Knowledge of EEO-related facts might be expected to take an immediate jump during the training period, level off over the next few months (or increase slightly as awareness of EEO is heightened), and perhaps drop off gradually over time as certain little-used facts are forgotten. Perceptual measures would probably show a slight increase at the first post-test, a further increase over the next six months, and a leveling off thereafter. Attitude change might occur abruptly for some individuals, gradually for others, and not at all for still others. Whatever the temporal course of the change, however, the evaluator is still interested in the basic questions:

- Is change occurring as a result of training?
- Does the change show a systematic variation; e.g., is one area of factual knowledge systematically lower in gain than others?
- What are the implications of the nature of this change for policy and for procedure?

Design 10 is similar to Design 14 in that the two groups cannot be considered equivalent. Design 10 is based on the assumption of a single pre-test and a single post-test; to extend it to multiple post-tests is, in fact, to convert it to Design 14. Thus, Design 14 is superior if it is important to consider changes over time, as it certainly would seem to be in the case of institutional statistics and individual measures as well, assuming that feedback is desired concerning the optimum time period for a "refresher course," etc.

Design 10 can be depicted as follows:

Group 1	Pre-Test	Training	Post-Test
Group 2	Pre-Test	---	Post-Test

Design 7 has the advantage of including several points in time in the analysis, but lacks even the precaution of a non-equivalent control group contained in Design 10. Design 7 takes the following form:

Group 1	Pre-Test	Training	Post-Test	Followup

Once again, as many followup measures as desirable can be taken.

To summarize then, it appears not to be feasible to employ a true experimental evaluation design for the SEOP. Of the quasi-experimental designs available, the Multiple Time-Series Design is preferable because it allows attribution of any measured change to the training program by virtue of the inclusion of a control group; it also allows for observation of the course of change in the impact measures over time. The Time-Series Experiment allows for over-time observations but lacks a control group. And the Non-Equivalent Control Group Design is a foreshortened version of the Multiple Time-Series, with the virtue of a control group, but no temporal factor built in.

Selection of Appropriate Impact Measures

In Part I of this report, it was recommended that a detailed statement of objectives be prepared early in the course of development of a program, and that this set of objectives be used as a basis for criterion measures of program impact. At the time of this writing, no such detailed listing of objectives is available for the SEOP; however, a set of objectives has been inferred from several project documents. These appear in Figure 13. On the basis of these objectives, and on the basis of extensive study of the objectives and actual content of a much earlier version of the Human Awareness Course, a number of items have been written to assess the effects of the EEO module of the SEOP on individual supervisors and managers. These items appear in a companion document[16] to this report. They are separated into measures of behavior (self-reports), knowledge, perceptions, and attitudes. (The latter two variables are measured by several "scales" which require further psychometric development, but most items of which have been used in other similar contexts.)

Assessment of Institutional Impacts

The SEOP Project staff within OCP have identified a set of some 25 statistical reports of EEO status within a Navy activity which, in conjunction with several other non-statistical sources of information, provide the basis for diagnosing EEO imbalances and inequities within each separate activity. Rather than review the list of statistical indicators here, it will be assumed that these were selected to cover all the decision areas which relate to the institutional-level objectives of the SEOP, and that they represent the best available information on the following areas:

- Selection of personnel to fill vacant positions.
- Decisions concerning advancement of an individual within the organization.
- Decisions relating to job reclassification, either upgrading or downgrading.
- Selection of individuals for specific training opportunities.

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[16]Dale K. Brown, *Critique of the Shore Equal Opportunity Program (SEOP),* (McLean, Va.: Human Sciences Research, Inc., May 1977), Technical Note. (In Review.)

Figure 13.

Examples of SEOP Objectives

Knowledge Objectives—The SEOP is intended to convey certain factual information to the individual supervisor or manager. As a result of participation, the supervisor or manager should be able to understand the following things (and recognize examples, where applicable):

- Institutional discrimination.
- Individual discrimination.
- Title VII of the Civil Rights Act of 1964 (as amended, 1972).
- Possible discriminatory effects of:
  a. the use of tests in employee selection;
  b. the use of qualification requirements which have discriminatory side effects;
  c. educational requirements;
  d. documentation of promotion actions;
  e. the composition of selection panels;
  f. use of non-job-related qualifications;
  g. organizational policies such as short lead-time for Personnel Office to fill a position, no-transfer policy between units, promotion from within, etc.;
  h. protective attitudes toward women and minorities;
- The legal ramifications of all of the above practices and policies.
- Affirmative Actions Plans.
- The difference between a goal and a quota.
- Requirements for supervisor/manager performance in EEO.
- Objectives, structure and function of the EEO Program.
- Appropriate and inappropriate uses of EEO office.
- Types of training programs available which can be used to counteract institutional race and sex imbalances, e.g., Upward Mobility, Worker-Trainee Opportunities, Apprentice, and Admin Co-Op Programs, and the requirements for admission to these.
- Current relative maldistribution of women and minorities across grades and job series.
- Demographic statistics.
- Concentration statistics.
- Comparative statistics.
- Etc.

Figure 13 (Continued)

Perceptual Objectives—The SEOP is intended to increase the accuracy of the supervisor/manager's perceptions concerning:

- Objectives of the EEO program.
- EEO implications of *all* personnel decisions.
- The presence of institutional discrimination in the Navy civilian work force.
- The capabilities of women in comparison to men, and of minorities in comparison to whites.
- Navy commitment to EEO.
- The scope of the supervisor/manager's responsibilities for EEO.
- The difference between "affirmative action" and "reverse discrimination."
- Etc.

Behavioral Objectives—The SEOP is intended to increase the occurrence of behaviors of the following types among supervisors and managers.

- Review of current personnel policies and procedures to identify EEO shortcomings and implications.
- Development of a personal statement of objectives regarding EEO.
- Periodic scheduled review and planning for future personnel decisions of all types.
- Maintenance of detailed documentation regarding each personnel decision in which the supervisor or manager participates.
- Allowing a reasonable amount of lead time in which to identify qualified candidates for vacant positions.
- Periodic scheduled review of institutional statistics to identify areas of sex or race imbalance.
- Formal requests to Personnel Officer that women and/or minority candidates be identified for vacant positions.
- Etc.

- Selection of training programs for specific individuals.
- Utilization of the skills acquired through training.
- Duty assignments.
- Disciplinary actions.
- Routine evaluation of the performance of subordinates.
- Recommendations for awards, rewards, commendations, and other positive acts.
- Reduction-in-force (RIF) decisions.
- Termination of employment.

What is recommended for consideration, however, is a method for computing and displaying institutional statistics to make them maximally useful to the supervisor, or EEO specialist. The easier a particular statistic is to comprehend, the more efficient is the process of diagnosing and assessing the presence of a problem. The method used to display a statistical measure can enhance the ease of interpretation considerably. For a supervisor or manager to be forced to give thorough consideration to numerous multi-page computer printouts, having obscure or cryptic labels, and numerous rows and columns of frequencies and percentages, is to place an unnecessary burden on that individual, and runs the risk of increasing the tendency already present in some people to resist "the EEO numbers game."

Human Sciences Research has developed an index of representativeness (the "Difference Indicator," D.I.) for use by the U.S. Army which converts institutional personnel and decision outcome statistics to a simple numeric index, easily displayed and readily interpretable as a *percentage of over- or under-representation of a particular group.*[17] The D.I. can be displayed graphically in a number of useful ways. The report[18] on the latest development of the D.I., an extension of the concept to use at brigade, battalion, and company levels, describes the index, its computation, its display, its interpretation, and its action

[17] The concept is similar to the Equal Opportunity Quality Indicator (EOQI) used by the Navy. The graphic display and interpretability of the D.I., however, appears more advantageous to the Navy from an efficiency standpoint.

[18] Nordlie and Edmonds, 1977, *op. cit.*

implications. The reader is directed to this report for full details of the system. However, a brief description and some illustrative examples of the computation and graphic display of the D.I. follow. This discussion is adapted from the report cited above.

The Difference Indicator takes a single decision area for a given work unit over a specified period of time and displays numerically and graphically the extent to which a specific group of persons—non-whites, for example— are *over-* or *under-represented* in decision outcomes compared to what would be expected if all decisions were made without regard to skin color (in the example) or another characteristic irrelevant to job performance. The Difference Indicator formula is:

$$\text{Difference Indicator} = \left(\frac{\text{Actual Number}}{\text{Expected Number}} \times 100\right) - 100$$

The purpose of multiplying by 100 is simply to put the results in percentage form which is generally easily understood. The purpose of subtracting 100 is so that the indicator will be zero whenever the actual and expected number are the same; negative when the actual number is smaller than expected, and positive when the actual number is larger than expected.

In order to use the Difference Indicator System, certain data must be collected carefully and accurately. To calculate any D.I., two numbers are required:

- the *actual* number of minorities or women on that dimension; and
- the *expected* number of minorities or women on that dimension.

Each of these numbers must apply to the same time period or point in time. The *actual* number is obtained by merely counting the number of minorities or women in a particular category. The *expected* number is derived from two other numbers:

1. the total number of *persons* "eligible" to be in that category;
2. the number of *minorities or women* "eligible" to be in that category.

Eligible means being in position or having a chance to receive the action denoted by the dimension. For *Promotion to Grade WL-07,* the eligible population would be those in lower grades who meet the minimum requirements.

By dividing (2) above by (1) above, the *expected percentage* of minorities or women in the category is determined. Multiplying this percentage by the *total* number of persons in the category results in the *expected* number of minorities or women in that category. An example of this is as follows:

1. Total number of persons eligible for promotion to grade WL-07 = 104.

2. Number of minorities eligible for promotion to grade WL-07 = 22.

   Dividing (2) by (1) = $\frac{22}{104}$ = .21 or 21% = expected percentage.

3. Total number of persons selected for promotion to grade WL-07 = 84.

   Multiply expected percentage times total number selected = 21% x 84 = 17.64.

   Expected number = 18 (17.64 rounded).

Remember that the *expected* number of minorities is that number of minorities which would occur in a given category if skin color were unrelated to being in that category. It is that number which would occur if the persons selected for a particular category were selected purely randomly from the eligible population. The *expected* number has no meaning other than as a reference point from which to measure. It should not be interpreted as indicating a goal or quota. It is merely a point from which to measure and has the same meaning wherever it is applied.

It can be seen from the above that for any dimension or category, four numbers are required to calculate a D.I.:

1. the total number of persons actually in the category;
2. the total number of persons "eligible" to be in the category;
3. the number of minorities "eligible" to be in the category;
4. the number of minorities actually in the category.

If the "actual number of minorities promoted" in the above example were 10, the D.I. would be:

$$D.I. = \left(\frac{10}{18} \times 100\right) - 100 \approx -45.$$

This means that minority group members are under-represented by 45 percent on that dimension.

The D.I. is a very flexible index, and can be used for any personnel decision type for which the four required pieces of information are available.

Displaying of the D.I. can be done in any of at least three different ways. These are:

Type I Display	–	A bargraph comparing all D.I.'s for a given unit for a single time period.
Type II Display	–	A bargraph comparing all units in an activity on the D.I. for each dimension separately.
Type III Display	–	A graph comparing D.I.'s for the same dimension on the same unit at different times.

Examples of these three display types appear in Figures 14, 15, and 16.

The different types are used for different purposes. Once the D.I.'s for a given time period are calculated for a particular unit, it will almost always be convenient to graph these in a Type I display. This type of display is useful for a supervisor/manager to see on what dimensions large minority-white or male-female discrepancies are occurring in his or her unit.

A Type II display is useful for a manager to compare similar subordinate units on any particular dimension in which he or she has an interest. This type of display is

useful for a commander to determine whether subordinate units are pretty much alike on a particular dimension or whether there are large differences from one unit to the next.

A Type III display is useful for a supervisor or manager to evaluate trends over time. This display shows the direction of changes occurring on any dimension. It is a simple matter once any D.I. is calculated to convert it to the graphic display. Obviously, when it is available, data for longer periods of time than one year can be plotted on similar charts.

The greatest value of this management tool is realized with the use of the Type III display which allows one to see how changes are occurring on a dimension. Normally, one is interested in reducing large white/non-white or male/female differences. The extent to which such differences are being reduced can be determined by observing the trend lines on the over-time graphic display.

Another factor that can only be evaluated from the over-time display is the consistency of differences. If one sees a D.I. for some dimension fluctuate around zero—i.e., + 84 percent the first quarter, -10 percent the second quarter, +5 percent the third quarter, and -12 percent the fourth quarter—one would conclude that the D.I. is essentially zero and is just showing random fluctuation from one time to the next. However, if one observed a D.I. that varied between -7 percent and -11 percent, for example, even though those are relatively small discrepancies, the fact that they are consistent over time means that the D.I. for that dimension is definitely not zero and some factor(s) is responsible for perpetuating that consistent difference.

Establishment of a D.I. system is not necessarily an easy matter. Appropriate dimensions must be identified and the accretion and aggregation of the required data must be routinized. However, a data processing system for the D.I., once established, should run smoothly and should remove a large burden from those charged with acqusition and interpretation of statistical data for EEO purposes.

No extensive discussion of the interpretation of the D.I. will be given here, but the report cited above does deal with that topic at length.

Figure 14.

Illustrative Example of a Type I Display for a Hypothetical Work Unit

Time Period: 4th Quarter FY '76 Unit: Payroll

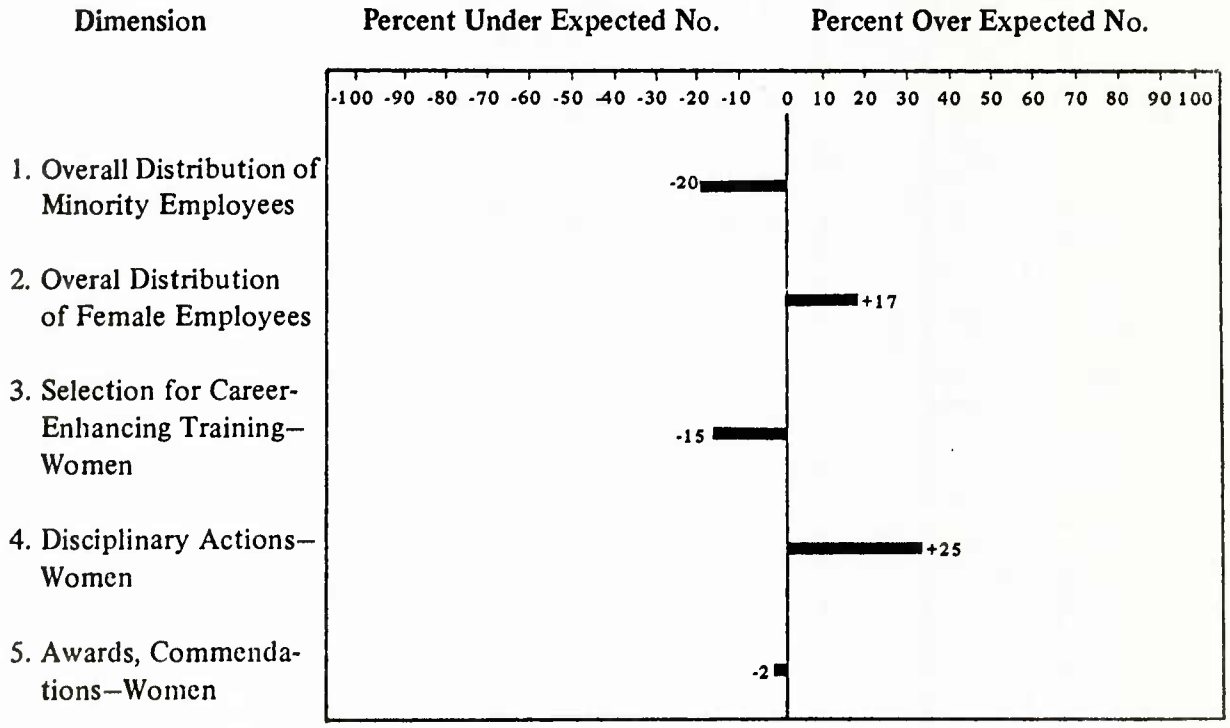


Figure 15.

Illustrative Example of a Type II Display

Dimension: Disciplinary Actions—Minorities Time Period: 4th Quarter FY '76

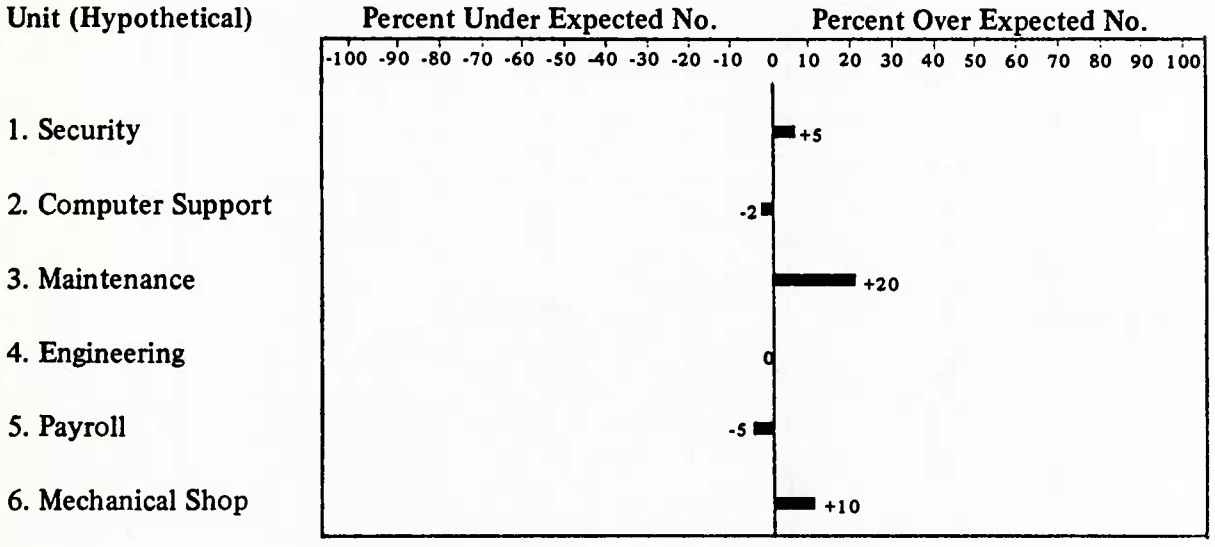
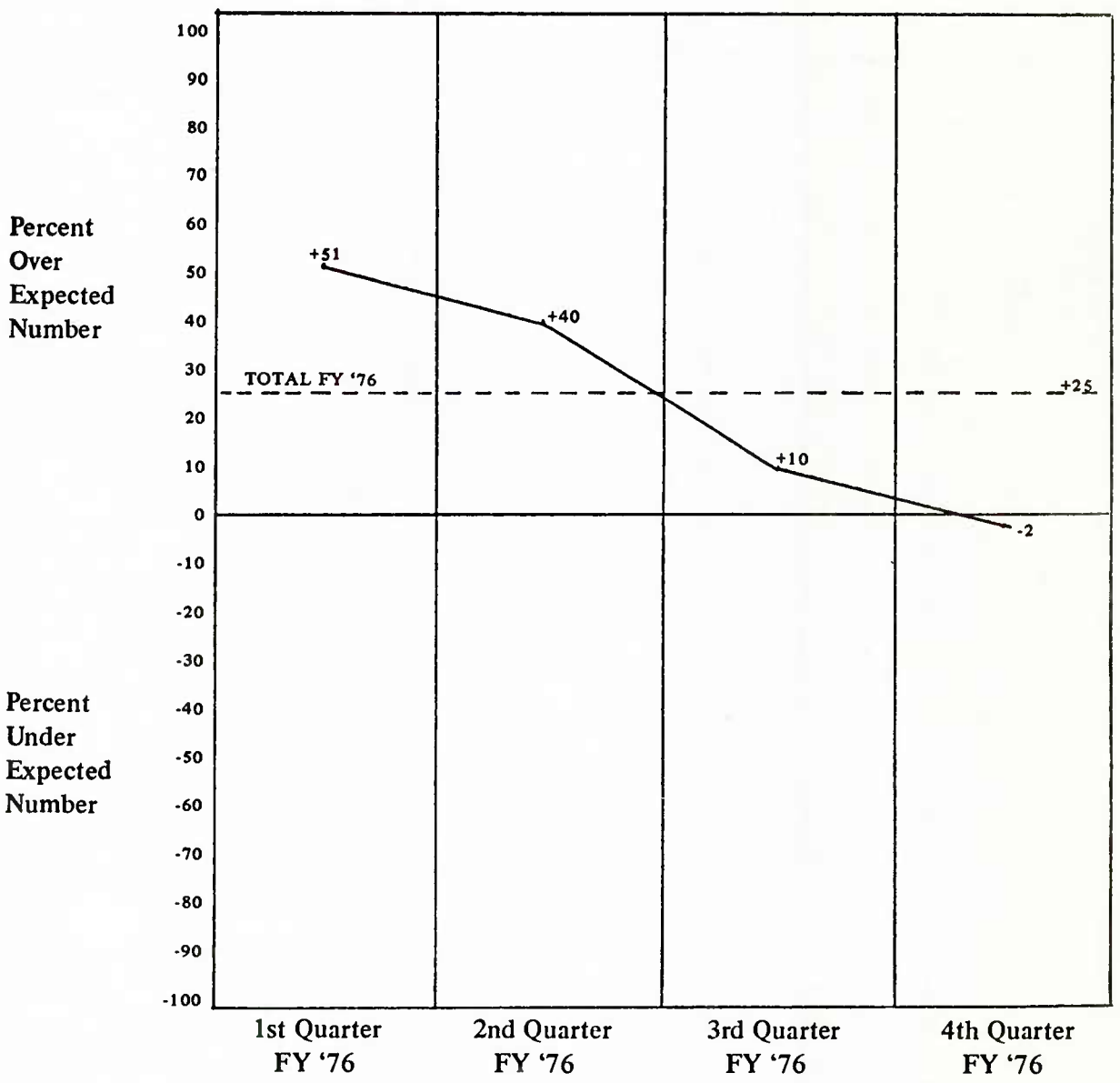


Figure 16.

Illustrative Example of a Type III Display

D.I. Trend Lines

Dimension: Disciplinary Actions–Minorities Unit: Computer Support



CHAPTER VI

SUMMARY

The Shore Equal Opportunity Program (SEOP) is viewed as a forward-looking effort to eradicate institutional discrimination beginning with its source, the personnel decisions made on a daily basis by Navy civilian supervisors and managers.

The overall assessment of the SEOP in general, and the EEO module in particular, is decidedly positive, even at the intermediate stage of development of the program at the time of this writing. The selection of a Stage Three Model of EEO training as described above; the employment of a "total systems" approach, using an organizational development model; the localization of the change effort; the technique of local command involvement in planning, based on diagnosis of prevailing local conditions; and the development of command self-sufficiency in carrying out the program over time, all are seen as highly praiseworthy aspects of the SEOP. This approach is viewed as the direction of the future in EEO training and is recommended as a model for other organizations and institutions.

A companion document to this Technical Report, a critique of the SEOP at an interim stage of development[19] identified the obvious absence of a systematic impact assessment plan as the chief shortcoming of the program. The present document is an effort to provide guidance to the SEOP staff in developing such an evaluation plan.

The evaluation plan recommended has the following characteristics:

- It is suitable for acquiring information potentially useful to policy-makers, to human relations program evaluators, to personnel involved in the day-to-day decisions concerning the SEOP, and to those interested in the research aspects of EEO-relevant training.

- It employs a scientific approach to program evaluation, suggesting a quasi-experimental design of the Multiple Time-Series type.

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[19]Dale K. Brown, 1977, *op. cit.*

- It incorporates measures of impacts on the behavior, knowledge, perceptions, and attitudes of individual supervisors and managers who experience the EEO module of the SEOP, as well as group measures of perceptions and measures of institutional-level EEO status.

The report includes some examples of items for measuring the variables named above, within the context of the Multiple Time-Series Design; and a new method of computing and displaying institutional statistics, the Difference Indicator (D.I.) is proposed for consideration.

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